DISSERTATION

COGNITIVE-COMPLEXITY AND COPING STYLE: THE IMPACT OF COGNITIVE COMPLEXITY ON ATTRIBUTIONAL STYLE AND COPING BEHAVIORS.

Submitted by

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In partial fulfillment of the requirements

for the Degree of Doctor of Philosophy

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Fort Collins, Colorado

Summer 2002

UMI Number: 3063983

ProQuest Information and Learning Company
300 North Zeeb Road
P.O. Box 1346
Ann Arbor, MI 48106-1346

COLORADO STATE UNIVERSITY

April 19, 2002

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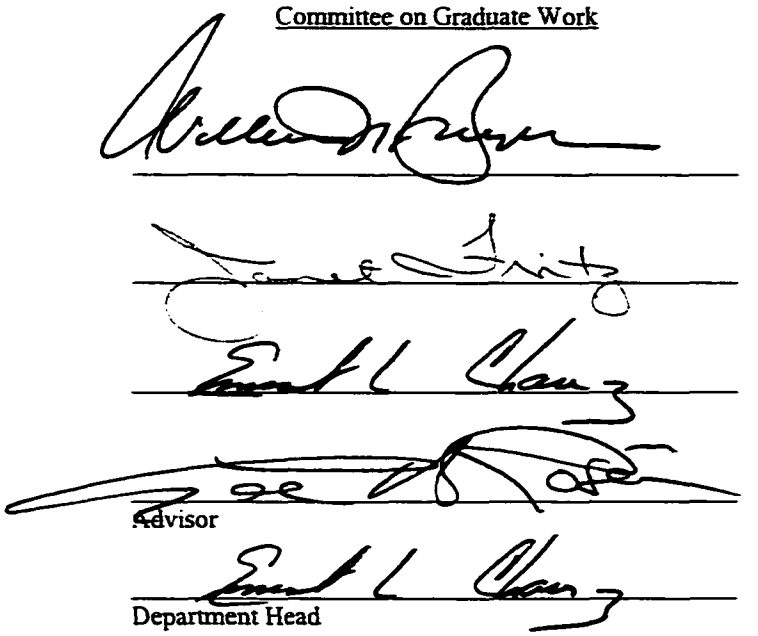

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ABSTRACT OF DISSERTATION

COGNITIVE-COMPLEXITY AND COPING STYLE:
THE IMPACT OF COGNITIVE COMPLEXITY ON ATTRIBUTIONAL STYLE
AND COPING BEHAVIORS

Cognitive-complexity is an individual difference variable that measures the degree of multidimensionality and differentiation of the self-concept. Greater cognitive-complexity is presumed to moderate the impact of events because the relatively greater number of distinct self-aspects serves to confine spill over of thoughts and feelings associated with an event to only those immediately relevant self-aspects, leaving remaining self-aspects unaffected. Cognitive-complexity has demonstrated significant stress-buffering effects in studies of stress and health outcomes. The purpose of the present study is to examine the possible cognitive and behavioral mechanisms through which greater cognitive-complexity may protect from the deleterious effects of stress.

The study utilizes questionnaire data to examine the impact of cognitive-complexity, four personality stress-moderators, and gender on coping decisions and attributions for negative outcomes. While greater cognitive-complexity was associated with more frequent use of active-cognitive coping, it failed to make a significant

contribution to the prediction of either active-behavioral or avoidance coping categories or to any of the attribution dimensions.

The lack of findings in these studies suggests that further research is needed to determine whether the present measure of cognitive-complexity is reliable and valid and secondly, if it is the variable for predicting cognitive and affective reactions to events.

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Acknowledgements

I wish to thank my advisor, Lee A. Rosén, for his continual support and guidance throughout my graduate career, and for his contributions with this dissertation. I also thank the members of my dissertation committee, Ernest L. Chavez, William N. Bower and Janet J. Fritz for their assistance and constructive comments.

I am also extremely grateful to my parents, Ruth and Royce Ballinger, and my late father, Richard P. Dempsey, for their unconditional love and support over all of these years. They saw me through my graduate studies with constant encouragement and never ending offers of assistant. Without them, none of my achievements could have been accomplished.

In addition, I am indebted to several friends and loved ones for their motivation, support and respites during my academic pursuits. Mark and Todd Hallberg, the two best friends that anyone could ask for, gave support and a constant friendship in the toughest of times. Their cool heads and candid style provided me with wisdom and strength that I needed to get through many of life's challenges. To Tiber, my faithful and loyal companion, who was always at my side through thick and thin, never wavering in his support and devotion. And finally, a tremendous thank you to a woman that rekindled my motivation for success, achievement and life, Gina A. Jones, whose spirit and love of life carried me when I needed it most.

Dedications

I would like to dedicate this work in the memory of my father, Richard Dempsey. If only he could have seen the final product and the culmination of my academic pursuit, for his unwavering support and courage inspired me to be a better person and attain this goal. And to Ruth and Royce, my mother and stepfather, their love, support and wisdom provided me a guide through the years that made this project a reality.

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I. Introduction

Statement of Problem

Cognitive-complexity is an individual difference construct that indexes the degree of multidimensionality and differentiation of the individual's self-concept. This structural model of self-knowledge has demonstrated an association with stress-buffering effects in studies of stress and health outcomes: participants characterized by greater Cognitive-complexity failed to show an increase in symptoms from low to high stress conditions, while such a relationship between stress and symptoms was exhibited by participants lower in Cognitive-complexity (Cohen, Pane, & Smith, 1997; Kalthoff & Neimeyer, 1993; Linville, 1985, 1987; Niedenthal, Setterlund, & Wherry, 1992; Smith & Cohen, 1993; and Woolfolk, Novalany, Gara, Allen, et al., 1995). Although the identification of Cognitive-complexity as a stress-moderating variable is important, questions remain about how this variable provides it health benefits. The purpose of the present study is to investigate the possible cognitive and behavioral mechanisms through which Cognitive-complexity may protect individuals from the deleterious effects of stress.

Evolution of Stress Models

Brief Overview

For the past several decades researchers have investigated the relationship between stress and health outcomes. Most of the earliest human studies adopted a simple

stimulus-response (S-R) approach in which stress was conceptualized as external conditions impinging on the individual, generating disturbance, and requiring adaptation. Research in this tradition examined the strength of association between self-reports of stress and subsequent illness. Although significant positive correlations between the two constructs were often obtained, they were typically low to moderate in magnitude.

In an effort to explain a greater amount of variance in illness onset and increase understanding of differential reactions to stress, investigators began to elaborate on their simple two variable model. One approach toward greater predictability involved the identification, and inclusion in studies, of a number of person variables, typically personality traits, presumed to moderate the stress-illness relation (Holahan & Moos, 1985; Roskies & Lazarus, 1980; Scheier & Carver, 1985). Findings from such studies indicated that high stress was not always associated with an increase in symptoms and that variations across individuals in response to stress may be accounted for in part by differences in personality.

In addition to including persona variables acting as moderators, models of stress were expanded in another way by proposing a number of cognitive and behavioral processes intervening between the occurrence of stressors and ultimate health outcomes (Lazarus and Folkman, 1984). These mediating processes accord the individual an active role in shaping the stress experience and moved the conceptualization and study of stress from a static approach to one that was more dynamic and process-oriented. Once a number of moderator variables had been shown to interact with stress and have significant protective effects on health, investigators sought to determine how such benefits were achieved by examining the impact of stress moderators on mediating

processes (Pearlin, Lieberman, Menaghan, & Mullan, 1991; Tanck and Robbins, 1989; Wills, 1985). Thus stress research evolved from a simple examination of stress-illness correlations to an exploration of the effects of various individual differences on the stress-illness association and subsequently on the mediating process.

Life Events Research

The earliest direction taken by researchers interested in studying the health implications of stress involved demonstrating an association between stress (often operationalized as the number of life events requiring change experienced by an individual) and subsequent illness onset. The basic assumption underlying this approach was that the effects of life changes or stressors were cumulative and that such taxing events serve as precipitating factors, increasing susceptibility and thus affecting the timing, but not the kind, of illness experienced (Rabkin & Strening, 1976).

Within the life events framework the relationship between stress and the onset of a variety of psychological and physical disorders has been examined, yielding significant, yet only modest, correlations. The number and intensity of events requiring or signifying change have been associated with sudden cardiac death, myocardial infarctions, accidents, athletic injuries, tuberculosis, leukemia, multiple sclerosis, diabetes, and the entire spectrum of minor medical ailments (Rabkin & Strening, 1976). Though the range of conditions associated with life events was impressive, the strength of the correlations was not. Significant correlations have been as low as .12 and typically below .40, suggesting that life events alone rarely account for a large proportion of the variance in illness onset.

Research on the Moderator Variables

The lack of correspondence between life changes and impairment of physical and psychological functioning led investigators to reject the simple S-R models and search for person variables that might interact with stress to influence health outcomes (Roskies & Lazarus, 1980). Individuals were thus classified by personality traits or types and these static characteristics were presumed to account for complex variations in responses across individuals. Possession of certain traits was assumed to somehow better enable individuals to deal with stressful experiences so that the deleterious impact of high stress on health failed to occur, although the mechanism(s) for these beneficial effects was often unspecified. Support for the stress-buffering impact of numerous individual difference variables has been obtained via their significant interactions with stress, accompanied by patterns of means indicating that only those high stress individuals who are low on the trait dimension of interest evidence a substantial increase in symptoms. Among the traits that have demonstrated a protective or buffering effect against stress are internal locus of control, hardiness, instrumentality, self-confidence, and an easygoing disposition.

Studies assessing locus of control indicate that being more internal in orientation reduces the strength of associations between stress and psychological symptoms (Daniels & Guppy, 1997; Johnson & Sarason, 1978; Sandler & Lakey, 1982; and Taris & Bok, 1996). In a classic study, Johnson and Sarason (1978) reported significant correlations between negative life events and both depression ($r = +.32$) and trait anxiety ($r = +.31$) for externals, while the corresponding relationships for internals were smaller and not significant ($r = +.10$ for depression and $r = +.15$ for trait anxiety). Similar studies

(Daniels & Guppy, 1997; Sandler & Lakey, 1982; and Taris & Bok, 1996) showed similarly significant results in regards to internal locus of control and depression.

Yet another individual differences construct which has received attention as a moderator of the stress-illness relation is that of hardiness. Kobasa (1979) describes hardy persons as possessing three general characteristics: 1) the belief that they can control or influence the events of their experience (control), 2) an ability to feel deeply involved in or committed to the activities of their lives (commitment), and 3) the anticipation of change as an exciting challenge to further developments (challenge).

Numerous studies examining the construct of hardiness lend support for the position that it is a moderating variable in the stress-illness connection (Kobasa 1979; Rowe, 1997; Sharpley, Dua, Reynolds, & Acosta, 1995; and Solcova & Tomanek, 1994). Kobasa's (1979) groundbreaking investigation of the construct looked to determine if hardiness plays a role in maintaining health under conditions of high stress. She collected data on personality (six measures were used to assess each of the three hardiness dimensions), stress, and health/illness from executives whom she then divided into high stress/low illness and high stress/high illness groups. Her results supported the general position that hardiness in a moderating construct in the stress-illness relation. The data suggested that that high stress/low illness executives were, at least in some ways, more in control, more committed, and more oriented to challenge than were their high stress/high illness counterparts.

Another test of the stress-buffering effects of dispositions on health outcomes was performed by Holahan and Moos (1987). These investigators examined what factors differentiated individuals low in psychosomatic symptoms and psychological distress

from those reporting high levels. Holahan and Moos identified two comparison groups: Stress resistant (high stress, low distress) and distressed (high stress, high distress). In addition to the stress and symptoms measures, participants had completed instruments assessing the personality characteristics of self-confidence and an easy-going disposition, and perceptions of family support. With respect to the personality data, the stress resistant group was characterized by easier going disposition in both men and women, and, for men only, the resistant group also evidenced a higher degree of self-confidence.

While nearly all studies examining the role of individual differences as moderators in the stress process have utilized content-based measures of self-knowledge such as traits or styles, one investigator (Linville, 1985, 1987, 1987) has taken initial steps in investigating the stress-buffering impact of the structure of self-knowledge. Linville explored the organization of self-cognitions with the construct she designated cognitive-complexity.

Cognitive-complexity

The notion of cognitive-complexity is based on the assumption that the self is multi-faceted rather than uni-dimensional and that self-cognitions are represented in terms of categories or schemas, referred to as self-aspects (Linville 1985). Examples of information about the self that may be represented by different aspects include the roles an individual assumes, as well as the individual's abilities, goals, activities, relations with others, and super-ordinate traits. These self-aspects are further comprised of cognitive elements that contain more specific self-relevant information. Cognitive-complexity assesses the number of self-aspects one uses to think about and describe oneself as well as the degree to which these multiple dimensions are interrelated by sharing common

cognitive elements (Linville, 1985, 1987, 1987). For instance, an individual whose self-knowledge was organized in terms of only three self-aspects (e.g., law career, athletics, and parenting) each containing many of the same constituent elements (i.e., success, honesty, and responsibility) would be relatively low in cognitive-complexity compared to a person whose self-system consisted of eight or nine separate self-aspects each containing different elements. Further, the model proposes that self-aspects are structures in a larger associative network that are activated depending on factors such as context and associated thoughts, relation to currently activated self-aspects, and recency and frequency of activation. The extent of spreading activation among self-aspects in the associative network then is in part a function of the degree to which self-aspects contain similar elements.

Cognitive-complexity is posited to play an important role in determining the impact of experiences on thoughts and feelings associated with various self-aspects. When a positive or negative event occurs, the self-aspect most relevant to the immediate context is activated and positive or negative thoughts and feelings become associated with that particular aspect (Linville, 1985, 1987). Due to the spreading activation process, feelings and inferences pertaining to the originally activated self-aspect spill over and color the thoughts and feelings regarding other self-aspects. For persons high in cognitive-complexity who have relatively numerous, distinct self aspects, this spill over process is confined to the immediately relevant self-aspects, leaving many other aspects of the self unaffected and available to serve as buffers. Thus, with greater cognitive-complexity events tend to impact a smaller proportion of the total self-concept. For those low in cognitive-complexity whose self-systems are defined in terms of a relatively small

number of highly interrelated self-aspects, the spill over process is more extensive and therefore events and their cognitive-affective concomitants impinge on a greater proportion of the self-concept.

Based on the implications of cognitive-complexity for determining the impact of events on the self, Linville (1987) empirically tested the stress-moderating effect of greater cognitive-complexity on health outcomes. In her prospective study, 106 participants completed measures of cognitive-complexity, life events, perceived stress, five common illnesses, and physical and depressive symptoms during both of two sessions attended two weeks apart. Multiple regression analyses yielded significant negative cognitive-complexity by stress interactions in the prediction of physical symptoms (-.68, $p < .01$), and depression (-.82, $p < .03$), and a near significant interaction in the case of perceived stress (-.56, $p < .06$). Thus, the implications are that the higher cognitive-complexity is, the less adverse is the impact of stressful events on physical and depressive symptoms.

In addition to the 1987 study conducted by Linville, other researchers have obtained results supporting the utility of cognitive-complexity for explaining health benefits under stress (Cohen, Pane, & Smith, 1997; Kalthoff & Neimeyer, 1993; Niedenthal, Setterlund, & Wherry, 1992; Smith & Cohen, 1993; and Woolfolk, Novalany, Gara, Allen, et al., 1995).

Indirect support for the benefits of multiple self-aspects comes from the work by Thoits (1993) on multiple identities. Developed within a sociological framework dealing specifically with social identities, Thoits found empirical support for the identity accumulation hypothesis which proposes that the more identities one possesses, the fewer

the symptoms of anxiety, depression, and disordered conduct that will be exhibited. Social identities enacted in role relationships are posited to give meaning and guidance to behavior, qualities which are vital to well-being. The additive effects of discrete identities on well-being are presumed to accrue because "sheer occupancy of multiple positions may enhance general feelings of security and a sense of personal worth, and buffer the effects of identity loss" (p. 176).

In testing the identity accumulation hypothesis, Thoits (1983) reanalyzed panel data from a community survey of 1095 adult women and men, investigating the relations among social positions (the operationalization of identity accumulation), distress, and background variables. Results indicated that the greater the number of identities possessed, the fewer the number of psychological symptoms that were reported. In addition, the examination of the relationships between identity change and distress showed that the more identities lost over time, the greater the mean distress at time 2 and the greater the increase in distress from time 1 to time 2. In contrast, the more identities gained from time 1 to time 2, the slightly less the distress exhibited at time 2 and the greater the decrease in distress over time.

While Thoits' approach to social identities based on role relationships does begin to quantify aspects of the self-concept and provides support for the buffering impact of greater dimensionality, the simple count of identities fails to assess the degree to which separate identities are interrelated. Instead, Thoits makes the assumption that as role relationships increase, they will necessarily overlap because the same social partners are likely to be involved; therefore, multiplicity and interrelatedness of social identities are presumed to be positively associated with one another. An advantage to the approach

taken by Linville and others is that both the number of discrete self-aspects and the extent of overlap among them are assessed. The joint impact of these factors rather than just multiplicity may be important in understanding the extent of change (in terms of mood, self-esteem, and psychological distress) individuals experience following events such as identity loss/gain or negative/positive feedback.

Research on Mediating Processes: Coping Behaviors

Realizing not only that stressors have diverse effects across individuals, but that there are important within-subject variations in dealing with stress over time and across events, some researchers (Holroyd & Lazarus, 1982; Lazarus, 1966; and Lazarus & Folkman, 1984) further refined stress models by including cognitive, perceptual, and behavioral variables thought to be important in adaptation. The transactional or relational approach to stress not only considered stable properties of the individual, but proposed reciprocal mediating cognitive and behavioral processes by which the individual takes an active role in shaping the stress experience. According to Roskies and Lazarus (1980):

> Stress is no longer a static interaction between certain properties of the stimulus and certain properties of the organism, but instead is conceptualized as an ongoing transaction and relationship, encompassing a whole series of stimulus, response, altered stimulus, altered response, and so on (p.44).

The first of the two mediating concepts posited by Lazarus and his colleagues is that of cognitive appraisal which is triggered by the perception of an internal or external demand. Cognitive appraisal involves attaching personal meaning to the stressor. According to Lazarus and Folkman (1984), cognitive appraisal is "the process of categorizing an encounter, and its various facets, with respect to its significance for well-being" (p. 31).

Presumably differences in sensitivity and vulnerability to events result in part from the diverse interpretations given them by different individuals.

Once a stress appraisal of events or circumstances has occurred, a second mediating concept, that of coping, is elicited. Coping, as defined by Lazarus and Folkman (1984) involves psychological and behavioral processes that are activated for the purpose of mitigating or eliminating stressful demands and the emotions they generate. Other researchers (Pearlin & Schooler, 1988) likewise distinguish coping responses as "the behaviors, cognitions, and perceptions in which people engage when actually contending with their life problems" (p. 5).

The third dimension of the stress response includes cognitive and affective reactions. Some investigators (Pearlin, Lieberman, Menaghan, & Mullan, 1991; Wills, 1985) accord particular significance to changes in general self-perceptions or self-evaluations that occur following stress appraisals. Wills (1985) claims that the direct effects of stress appraisals are lowered self-esteem, perceptions of low self-efficacy, and perceived lack of control over important events. Similarly, Pearlin, Lieberman, Menaghan, & Mullan (1991) emphasize the role of mastery and esteem. Other researchers (Thoits, 1986, 1994) emphasize the primacy of affective states that result from stress appraisals. According to Thoits (1983), although stressors threaten aspects of the self-concept, reactions to stress appraisals are primarily emotional in nature. Unpleasant affective states frequently occurring in stressed individuals include anxiety, tension, upset, nervousness, frustration, and distress.

Incorporating these various approaches to mediating processes yields the following complete transactional model of stress. Internal or external demands (stressors)

are evaluated by the individual for consequences to well-being and the individual's ability to meet those demands (appraisal). An appraisal of demands as taxing or exceeding the individual's capabilities is followed by the short-term reaction, the stress response, which is comprised of a number of reciprocal processes that interact with each other as well as with the appraisal (and reappraisal) process. The components of the stress response are physiological changes; behavioral activities which include coping and information processing skills of memory, attention, learning, problems solving; and cognitive-affective changes which include self-evaluations, emotions, and attributions. Physical and psychological functioning (health outcomes) represent the long-term consequences of the dynamic processes involved in appraisal and the various components of the stress reaction. In addition to these processes are internal resources (i.e., person variables) and external resources (e.g., social support) that interact with appraisal and components of the stress response to influence outcomes.

Within this complex model of adaptation to stress, a large portion of the research on mediating processes has focused on initial appraisals of events and on one particular behavioral component, that of coping. Results of studies showing significant effects for personality variables on initial appraisals and coping has helped elucidate the ways in which various traits or styles contribute stress-moderating effects to health outcomes.

A study performed by Tanck and Robbins (1989) sought to investigate how choices of coping behaviors may be influenced by the traits of assertiveness and locus of control. One hundred thirty-three undergraduates completed the two trait measures, questions about recent occurrences, intensity and duration of feelings of anxiety and depression, and a checklist of 22 common coping reactions. Participants were asked to

indicate the extent to which they typically utilized the 22 coping responses in order to diminish or relieve feelings of tension.

Results indicated that coping responses showed significant relationships to both personality variables. In the case of assertiveness, six significant positive correlations were found. Specifically, increases in assertiveness were associated with two items tapping social support ("seek company" and "talk the problem over with friends or family"), two items tapping active, task-orientation ("try analyzing the problem" and "take direct action to deal with the source of the problem") and two items related to avoidance ("use marijuana" and "seek genderual comfort"). Significant negative relationships were found for assertiveness with three items typically categorized as emotional discharge or avoidance ("become irritable and easily angered", just bear with the discomfort until it goes away", and "seek complete isolation").

Results in the I-E locus of control scale indicated that while internals were more likely to use mediation as a coping response, externals were more prone to day dream, use alcohol, and seek professional help. The results of locus of control are particularly interesting among females, where a clear dichotomy emerged in the types of coping behaviors used as a function of control orientation. Internality among females in this sample was positively related to active cognitive and behavioral strategies, specifically mediation and taking direct action in dealing with tension. In contrast, externality was correlated with avoidance coping, in the forms of seeking genderual comfort and using alcohol.

A variety of correlations between coping items and the anxiety and depression measures indicated that trying to avoid dealing with the situation or perseverating on its

negative aspects were associated with increases in psychological symptoms. For both anxiety and depression, positive correlations were found with the coping responses "spend endless hours thinking about things" and "just become ineffective—stop functioning well". In the case of depression, positive correlations were also found with the items "daydream or fantasize", "become irritable and easily angered", and "seek complete isolation"; for anxiety, a positive relationship was found with the item "take tranquilizing medicines".

Overall, the various results from this study suggest that increased assertiveness and internality are positively related to problem-solving coping efforts, while decreased assertiveness and externality are associated with avoidance and, in some cases, harmful coping behaviors. In addition, significant positive relationships were observed with numerous avoidance strategies and psychological symptoms of anxiety and depression. The results suggest that differences in psychological symptoms between individuals high and low on the dimensions of assertiveness and internality may be due to the counter-productive coping efforts enlisted by those lacking assertiveness and an internal locus of control orientation.

Another investigation to be discussed here involving locus of control and mediating processes is that performed by Parkes (1994) who examined the variable's relation to appraisal as well as coping. Over a four year period, 171 female nursing students in their first year of training completed the following measures: Rotter's (1966) scale to assess locus of control and the Ways of coping questionnaire (adapted from Coyne, Aldwin, and Lazarus, 1981) in which participants recalled a particularly demanding or troubling episode within the past month and indicated the importance of

the episode, their appraisal of the situation, and which coping strategies they had employed to deal with it. Importance ratings fell into three categories of low, medium, and high.

Four appraisals were listed ("could change or do something about it", "must accept or get used to", "needed more information before I could act", and "had to hold back from doing something I wanted to") from which participants selected those which applied to their situations. In most cases, either "could change" or "must accept" was the only appraisal reported or was designated as the most relevant and thus these appraisals served as two of the three discrete appraisal categories. Participants checking both of them without indicating which was most relevant were omitted from the analyses. Because some participants endorsed "must accept" along with another appraisal item, a third appraisal category designated "mixed" was established.

Results of the data analyses indicated that locus of control did not significantly affect the frequencies of appraisals across the three categories. Overall few participants rated their situations as ones that could be changed; the vast majority of events were evaluated as situations that required acceptance, either exclusively or in combination with some other appraisal. On the other hand, locus of control did significantly influence the frequency of importance ratings. Internals reported a higher percentage of stressors rated low in importance, while externals rated a higher percentage of their episodes as being medium or high in importance.

The results pertaining to coping in relation to locus of control and appraisal indicated that internals and externals differed in the nature and effectiveness of their coping. As predicted, internals showed higher overall levels of direct coping. Of greater

interest though was the fact that for internals, both direct coping and suppression were related to appraisals, whereas this was not the case for externals. The divergence in coping patterns is particularly evident in situations perceived as amenable to change. In such situations, internals reported using high levels of direct coping and low levels of suppression, while externals showed the opposite pattern. Thus, in situations at least subjectively deemed as amenable to change, internals reported coping in a manner potentially adaptive while externals did not. The differences in coping patterns were less marked for the "mixed" and "must accept" appraisals but the trends support the notion that internals cope more effectively. As the degree to which the situation was appraised as outside the individual's control increased, the trend for internals was of decreasing levels of direct coping and increasing levels of suppression. In contrast, externals reported lowest levels of direct coping and highest levels of suppression in response to events they perceived as changeable.

Purpose

Although the focus on personality variables has yielded a variety of significant findings pertaining to their moderating impact on stress as well as their direct impact on mediating processes such as coping, a number of advantages may be found in utilizing a measure such as cognitive-complexity. For one thing, the personality approach has resulted in a piecemeal accumulation of evidence in which a variety of dispositions have been found individually to be related to health outcomes and coping. As more and more traits are found to have impact, the picture will become increasingly complicated. Interactive effects with other dispositions will have to be assessed in addition to analyzing for interactions of separate traits with stress. On the other hand, the structural approach

taken by Linville (1985, 1987) involves computing a summary measure of the self construct system and as such represents a more holistic way of handling the wealth of information comprising the self-concept.

Anther potential advantage of exploring the structural approach is that it may be more useful when attempting to design interventions to assist individuals in learning to deal more effectively with stress. Within the context of personality research, between-group differences on measures of appraisal and coping give some clue as to how various traits affect health outcomes, but they do not necessarily aid in formulating effective interventions. If traits are relatively enduring predispositions to respond in certain ways, it seems unlikely that concerted efforts undertaken to change such pervasive styles could be very successful. In contrast, the cognitive organization of self-knowledge might be more amenable to change than the specific content of that information. Cognitive therapies have already been developed that seek to alter individuals' false or maladaptive ways of perceiving and thinking about themselves and their relations with their environment (Ellis, 1979, 1985; Kelly, 1955). Such strategies could be utilized in an effort to increase the complexity of the individuals' self-systems by encouraging them to organize information about their various roles, activities, relationships, goals, superordinate traits in multiple and distinct ways. Establishing greater differentiation within the self-concept coupled with specific coping skills training may have more impact than skills training alone or attempts to change traits or styles.

With these potential benefits of cognitive-complexity in mind, the current study investigated the impact of this variable on mediating processes, attributions, and coping choices. The study utilized questionnaires to assess differences in coping decisions as

well as attributions for negative outcomes as a function of cognitive-complexity and various personality measures.

The study employed a variety of questionnaires to examine the relationship between cognitive-complexity and the use of various coping strategies. A number of personality measures previously used in stress and coping research were also administered in order to assess their unique contributions to the prediction of coping compared to that afforded by cognitive-complexity. Finally, attributional styles and expectancies for negative outcomes were assessed for evidence of cognitive-complexity's impact on coping behaviors associated with stress responses.

Hypotheses

Three main hypotheses were tested.

Hypothesis 1: Higher cognitive-complexity was expected to be negatively related to the use of avoidance coping strategies, while being positively related to the use of active coping strategies.

Hypothesis 2: Individuals lower in cognitive-complexity were expected to use avoidance strategies sooner after a stressor's occurrence than those who are relatively high in cognitive-complexity, while those higher in cognitive-complexity were expected to utilize active coping strategies sooner than those low in cognitive-complexity.

Hypothesis 3. Cognitive-complexity was expected to be related to individual's attributions for negative outcomes. Specifically, cognitive-complexity was predicted to correlate negatively with external, global, and stable attributions, and should be positively correlated with more positive expectations for future outcomes.

II. Method

Participants

Participants were 120 undergraduates (female = 76, males =44), all currently enrolled in psychology courses at Colorado State University, and received credit toward course requirements in exchange for their participation in the study.

Procedure

Participants attended a one and one-half-hour session, were data was collected by administration of the selected questionnaires. Participants were informed that they are being asked to fill out a number of questionnaires for the purpose of examining differences in the ways college students think about and handle a variety of typical issues. After obtaining their consent, participants completed the cognitive-complexity trait sorting task. Materials used in this task included a packet of 33 randomly ordered index cards, each containing the name of one trait and a number in the corner and a recording sheet and pencil. Before beginning the task, instructions (adapted by Linville, 1987) were provided by the experimenter.

Participants were told that the purpose of the task was to use the index cards with trait terms to describe themselves in personally meaningful ways. It was explained that there are no right or wrong ways to sort the cards; participants were simply to group traits together in as many different piles as they wish in order to represent the various self-perceived aspects of themselves and their lives. In addition to forming as many groups as

desired, participants were told that they can use as few or as many of the 33 traits as they feel were descriptive of them. In the event that participants wish to place some of the traits in more than one group, 10 blank cards will be provided for participants to make duplicates; however, blank cards were not used to insert new trait terms into the sort.

For the purpose of recording the results, participants were given a sheet of paper with 11 columns. Participants were told to indicate which traits they have grouped together by writing the trait numbers down the column and to use a separate column for each group. Aside from identifying the number of groups formed and traits comprising each one, participants were asked to provide a short label (simply a word or phrase) to designate what aspect of them or their lives each trait group represents. Participants were instructed not to put their names on the recording sheet, will be assured that their responses are to kept strictly confidential, and will be urged to be as honest as they can.

A maximum of thirty minutes was allotted for the completion of the trait sort and recording of the results. Following the assessment of cognitive-complexity, participants spent the remainder of the time completing personality measures, and coping and attribution questionnaires. After completing these measures, participants were debriefed, thanked for their participation and dismissed.

Measures

Cognitive-complexity. In order to assess the multiplicity and differentiation of self-aspects Linville developed a trait sort measure (Linville, 1985). The 33 traits chosen for the cognitive-complexity task were obtained from a pretest, open-ended self description task. The features were selected to represent a wide range of dimensions that

students typically use to think about themselves and include both positive and negative characteristics.

A cognitive-complexity score is calculated for each subject based on the trait sort results and the following formula: $SC = \log_2 n - (\sum_i n_i \log_2 n_i) / n$, where n is the total number of traits (33) and n_i is the number of traits that appear in a particular group combination. The statistical measure H denotes the absolute number of distinctions (in bits) that the subject is making. As Linville explains, "the measure does not assume that people think in terms of independent binary attributes; it is simply a useful statistical measure of the richness or complexity of a trait sort" (1987, p.666). The greater the number of groups created and the greater the dispersion of elements across groups, the greater the cognitive-complexity score.

Correlations between cognitive-complexity and measures of other constructs possible similar to or highly related to it provide evidence for cognitive-complexity's independence as a construct. Linville reports the following correlations of cognitive-complexity with: Self-esteem (r = .10), intelligence as assessed by G.P.A. (r = .08), intelligence as assessed by S.A.T. verbal score (r = .10), intelligence as assessed by S.A.T. quantitative score (r = .20), social desirability (r = .19), SES (r = .06), private self-awareness (r = .02), self-monitoring (r = .18), and social anxiety (r = -.10). Similarly, the degree of association between self-complexity and cognitive complexity (differentiation of the construct system for perceiving others) indicates that the two are not highly related. The strength of correlations between various measures of the two constructs ranged from .02 to .28, indicating that complexity in one construct system may be independent of the degree of complexity in another.

Self-esteem. In order to assess individuals' sense of self-satisfaction and perceptions of overall worthiness, a measure of global self-esteem developed by Rosenberg (1965) was employed. The ten items compromising the scale tap the following issues: Satisfaction with one's life, feelings that one possesses good qualities, perceptions that one is successful and useful, self-respect, and positive attitudes towards oneself. A 4-point scale from "strongly agree" to "strongly disagree" is used to answer the 10 items which are then summed for the total score. Items for this scale were scored so that higher total scores represented greater global self-esteem.

Locus of control. A standard measure developed by Rotter (1966) was used to assess the locus of individuals' perceptions of control over events. The locus of control scale presents participants with 23 pairs of statements, one of which designates an internal orientation and the other which presents an external locus of control. For each pair of statements, participants are forced to choose the one which better represents their attitude. Each external response is scored +1, while each internal response is scored a 0 so that the higher totals designate a more external orientation toward control over events.

Optimism. The Life Orientation Test (LOT; Scheier and Carver, 1985) was given to participants to assess dispositional optimism. For this measure, 12 statements pertaining to generalized expectancies for successful outcomes are rated on a 5-point scale from "strongly disagree" to "strongly agree". Items are coded so that higher scores represent greater optimism.

Attributions and expectancies. The Attributional Style Questionnaire (ASQ; Metalsky, Halberstadt, and Abramson, 1987) is a modification of the questionnaire developed by Seligman, Abramson, Semmel, and von Baeyer (1979). The ASQ presents

12 negative outcomes, six involving interpersonal events and six representing achievement events. In each of the 12 cases, respondents are instructed to read the event and imagine that it actually happens to them. After writing down the cause of the negative outcome, respondents use 7-point rating scales to make evaluations regarding the internality, stability, and globality of the cause.

Coping Strategies. The Coping Strategies Questionnaire (CSQ) was developed Holahan and Moos (1987) to assess differences in the types of coping strategies individuals predict they would use in a standard set of situations. To do this, four events are presented along with a combination of coping strategies. Participants are informed that the purpose of this questionnaire is to examine the ways in which college students handle various situations that commonly come up in their life experiences. They are instructed to read each of the four events and to think about the ways in which they would handle them if the events happened to them. It is emphasized that participants should use what they know about themselves and any information they have about how they have dealt with the same or similar situations in the past as the basis for answering the items. After thinking about what they would do, participants read over a list of 32 coping strategies and indicate which of them they would employ in each situation. For the purpose of this study, participants will also use a 1 (immediately after the event) to 5 (a long time after the event) scale to report on the time frame for implementing the strategies checked off.

The coping strategies consist of 11 active-cognitive strategies, 11 active-behavioral strategies, and 10 avoidance strategies.

Perceived stress. The Perceived Stress Scale (PSS) (Cohen, Kamarack, and Mermelstein, 1983) is a 14-item questionnaire designed to assess the degree to which individuals appraise situations in their lives to be stressful. Specifically, the items tap the extent to which individuals find their lives to be unpredictable, uncontrollable, and overloading. The questions focus on the individuals thoughts and feelings for the last month.

III. Result

Correlations between Personality and Cognitive-complexity

The correlations between cognitive-complexity and personality independent variables are presented in Table 1. The total sample of 120 was used for these correlations and for the regression analyses for the coping frequency measures. Cognitive-complexity was uncorrelated with self-esteem, locus of control and optimism; it did exhibit a significant, but weak correlation of .23 with stress reactivity. These results are consistent with Linville's findings that cognitive-complexity is not strongly associated with standard personality measures such as self-esteem.

In contrast, the personality measures all showed moderately strong significant correlations with one another ranging from .38.to .67. Higher levels of global self-esteem were associated with lower stress reactivity, less externality, and greater optimism. In addition, higher levels of stress reactivity were associated with greater externality and less optimism. Finally, greater externality in locus of control was associated with less optimism.

Table 1. Correlations between Predictor Variables

	Self-esteem	Stress	Locus of control	Optimism
Cognitive-complexity	-.08	.23*	.06	-.06

	Self-esteem	Stress	Locus of control	Optimism
Self-esteem		-.54**	-.38**	.67**
Stress			.40**	-.47**
Locus of control				-.45**

*p < .01.,

**p < .001.

Predictions of use of the Three Coping Categories

Separate simultaneous multiple regression analyses were employed to predict the use of the three different coping categories from cognitive-complexity and personality data. In addition to cognitive-complexity and the four personality variable chosen for inclusion, participants' gender was entered as a predictor to account for any gender effects. The sample size for these analyses was 120.

Table 2 displays the regression results for the frequency of active-cognitive coping (F-AC). Included in the table are the correlations between predictors and frequency of active-cognitive coping, unstandardized and standardized regression coefficients, squared semi-partial correlations (sr^2), along with the values of multiple R and R^2. Multiple R for regression, while low in magnitude (R = .33), was significantly different from zero: $F(6,113) = 2.31$, $p < .05$. Only two of the IVs contributed significantly (with $sr^2 = .04$) to the prediction of active-cognitive coping: Cognitive-complexity with $F(1,113) = 5.01$, $p < .05$ and optimism with $F(1,113) = 5.21$, $p < .05$. The Independent variable (IV)-Dependent variable (DV) correlations showed that both increased cognitive-complexity and greater optimism were associated with higher frequencies of predicted active-cognitive coping, r = .21 and r = .18 respectively. Together these two predictors

accounted for 8% of the variance in active-cognitive coping, with the remaining IVs contributing the other 3% of explained variance. Altogether, 11% of the variability in predicted use of active-cognitive strategies could be predicted by knowing individuals' gender, level of cognitive-complexity and scores on the four personality measures.

Table 2. Regression Results for Frequency of Active-Cognitive Coping

Predictor Variables	Correlations with F-AC Coping (DV)	B	Beta	Sr^2 Unique
Cognitive-complexity	.21	.08	.21*	.04
Gender	.10	.01	.04	.00
Personality				
Self-esteem	.07	.00	-.03	.00
Stress	.01	.00	.01	.00
Locus of control	.07	.01	.17	.02
Optimism	.18	.01	.29*	.04
			$R^2 = .11$ [a,b]	
			R = .33	

*p < .05.
[a] Unique variability = .11; shared variability = .00.
[b] Differences due to rounding of values for sr^2.

In the case of active-behavioral coping, multiple R was not significantly different from zero. with all six variables included in the regression equation, R = .29, F(6,113) = 1.68, p = .13. For this second active coping category though, cognitive-complexity again exhibited a positive correlation (r = .20), indicating that greater complexity is weakly associated with more frequent use of active-behavioral strategies.

The results of regression analyses for the predicted frequency of use of avoidance coping (F-AV) are displayed in Table 3. Multiple R, equal to .50, was significantly

different from zero, with $F(6,113) = 6.16$, $p < .001$. In significance tests of individual IVs, only stress reactivity emerged as a statistically significant predictor of avoidance coping, $sr^2 = .06$, $F(1,113) = 9.40$, $p < .01$. Global self-esteem was marginally significant with $sr^2 = .02$, $F(1,113) = 2.98$, $p = .09$. Correlations with F-AV showed that increased stress reactivity is associated with greater use of avoidance strategies, $r = .46$; in contrast, greater self-esteem is correlated with less frequent reliance on avoidance coping, $r = -.40$. Together the unique contributions of these two predictors accounted for 8% of the variance, while the total unique variability was equal to 10%; the remaining 15% of the explained variance in avoidance coping represents shared variability among the six IVs.

Table 3. Regression Results for Frequency of Avoidance Coping

Predictor Variables	Correlations with F-AC Coping (DV)	B	Beta	Sr^2 Unique
Cognitive-complexity	.19	.03	.10	.01
Gender	.12	.00	.00	.00
Personality				
Self-esteem	-.40	-.01	-.21[a]	.02
Stress	.46	.01	.32*	.06
Locus of control	.18	.00	-.05	.00
Optimism	-.31	.00	-.04	.00
			$R^2 = .25$ [b,c]	$R = .50$

*$p < .01$. [a] Marginally significant at $p = .09$.
[b] Unique variability = .10; shared variability = .15.
[c] Differences due to rounding of values for sr^2.

Predictions of Timing of the Three Coping Categories

The results of regression analyses on the timing of active-cognitive coping (T-AC) are displayed in Table 4. Total N was equal to 109 for this analysis. Multiple R for regression was low in magnitude but significant, $R = .35$, $F(6,102) = 2.18$, $p < .05$. While multiple R was significant, none of the six IVs emerged as a significant predictor of T-AC individually and together the predictors only accounted for 12% of the variance.

Table 4. Regression Results for Timing of Active-Cognitive Coping

Predictor Variables	Correlations with F-AC Coping (DV)	B	Beta	Sr^2 Unique
Cognitive-complexity	.09	.11	.06	.00
Gender	-.07	-.27	-.15	.02
Personality				
Self-esteem	-.24	-.02	-.09	.00
Stress	.24	.01	.12	.01
Locus of control	.23	-.03	.14	.01
Optimism	-.27	-.01	-.08	.00

$R^2 = .12$ [a, b]
$R = .35$

[a] Unique variability = .05; shared variability = .07.
[b] Differences due to rounding of values for sr^2.

Although a measure for timing of active-behavioral strategies (T-AB) was missing for slightly over one-third of the sample, regression analyses were conducted on this DV with N = 83. The results of these analyses are displayed in Table 5.

In the case of predicting the timing of use of active-behavioral coping, multiple R was significant: $F(6,76) = 3.21$, $p < .01$. Tests of individual IVs revealed that gender contributed significantly to prediction with $sr^2 = .10$, $F(1,76) = 8.71$, $p < .01$. In addition, locus of control emerged as marginally significant, $sr^2 = .04$, $F(1,76) = 3.33$, $p = .07$. The IV-DV correlations showed that being female was associated with a shorter time before implementing active-behavioral strategies ($r = -.27$) and that greater externality was associated with a longer time elapsing before using active-behavioral coping ($r = .27$). Together gender and locus of control accounted for 14% of the variance in T-AB, while the remaining IVs contributed 2% to unique variability. The remaining 6% of explained variance represents shared variability.

Table 5. Regression Results for Timing of Active-Behavioral Coping

Predictor Variables	Correlations with F-AC Coping (DV)	B	Beta	Sr^2 Unique
Cognitive-complexity	.12	.05	.13	.02
Gender	-.27	-.10	-.32*	.10
Personality				
Self-esteem	-.26	00	-.10	.00
Stress	.19	.01	.02	.00
Locus of control	.27	.01	.21[a]	.04
Optimism	-.27	.00	-.09	.00
				$R^2 = .22$[b]
				$R = .46$

*$p < .01$.
[a] Marginally significant at $p = .07$.
[b] Unique variability = .16; shared variability = .06.

Predictions of Attributions for Negative Outcomes

Again, simultaneous regression analyses were used to assess the relationship between cognitive-complexity, gender, and the selected personality variables with attributions for negative outcomes. Prediction of two of the attribution dimensions, internality and stability, yielded multiple Rs that were not significant. For internality, multiple R = .23, $F(6,113) = 1.04$, $p = .40$; in the case of stability, multiple R = .18, $F(6,113) = 0.58$, $p = .75$.

The regression performed with cognitive-complexity, gender, and the personality variables as predictors of the global attribution dimension did produce significant results which are presented in Table 6. Multiple R for regression was significantly different from zero, R = .43, $F(6,113) = 4.11$, $p < .001$. Only two of the independent variables contributed significantly to the prediction of global attributions, gender with $F(1,113) = 5.32$, $p < .05$ and stress reactivity with $F(1,113) = 4.70$, $p < .05$

Table 6. Regression Results for Global Attributions

Predictor Variables	Correlations with F-AC Coping (DV)	B	Beta	Sr^2 Unique
Cognitive-complexity	-.06	-.19	-.09	.01
Gender	-.13	-.41	-.21	.04
Personality				
Self-esteem	-.27	-.02	-.10	.00
Stress	.31	.03	.24*	.04
Locus of control	.27	.04	.15	.02
Optimism	-.28	-.01	-.04	.00

$R^2 = .19^a$; R = .43

*p < .05.; [a] Unique variability = .11; shared variability = .08.

Squared semi-partial correlations indicated that gender and stress reactivity each accounted for 4% of the explained variance in global attributions. cognitive-complexity accounted for 1% of explained variance and locus of control 2%, with the remaining 8% accounted for by combinations of the six predictors. The correlations and regression coefficients revealed that more global attributions were associated with greater stress reactivity and were reported more frequently by males.

Results for the final attribution DV, expectations about future outcomes, are displayed in Table 7. Multiple R was significantly different from zero, $R = .47$, $F(6,113) = 5.19$, $p < .001$. Again, only two of the six independent variables emerged as significant predictors, gender with $F(1,113) = 4.71$, $p < .05$ and optimism with $F(1,113) = 7.69$, $p < .01$. The unique contributions of gender and optimism to the prediction of future expectancies were 3% and 6% respectively. In addition, locus of control accounted for another 2% of the 22% of explained variance and combinations of the predictors accounted for the remaining 11%. Higher expectations for future success were reported more by females and were associated with greater optimism.

Table 7. Regression Results for Expectancy Attributions

Predictor Variables	Correlations with F-AC Coping (DV)	B	Beta	Sr^2 Unique
Cognitive-complexity	.01	.01	.01	.00
Gender	-.15	-.23	-.19*	.03
Personality				
Self-esteem	-.29	.00	-.04	.00
Stress	.20	.00	.00	.00

Predictor Variables	Correlations with F-AC Coping (DV)	B	Beta	Sr^2 Unique
Locus of control	.28	.02	.14	.02
Optimism	-.42	-.04	-.34**	.06
				$R^2 = .22$*
				R = .47

*p < .05., **p < .01.

[a] Unique variability = .11; shared variability = .08.

II. DISCUSSION

Summary

No consistent pattern emerged between the coping and attribution dependent variables (DVs) and any of the predictor variables included in this study. Except for gender, predictors that emerged as significant typically did so on one or two DVs only. Partial support was found for hypothesis 1 pertaining to cognitive-complexity's relation to the various coping frequency measures. In the case of active-cognitive coping, cognitive-complexity was one of the two independent variables (IVs) that made a significant contribution to prediction. Both cognitive-complexity and optimism were related in a consistent way to the coping category, with higher levels of these variables associated with greater use of active-cognitive strategies. While cognitive-complexity (as well as the other IVs) failed to emerge as a significant predictor of active-behavioral coping, the positive correlation between the two indicated that higher cognitive-complexity was associated with greater use of active-behavioral strategies as predicted. Finally, cognitive-complexity did not contribute significantly to the prediction of avoidance coping and the direction of its correlation with this coping category was opposite to that expected. For this third coping category, stress reactivity and global self-esteem emerged as significant and marginally significant predictors respectively, with greater stress reactivity and lower self-esteem related to more reliance on avoidant attempts to cope.

No support for hypothesis 2 was found regarding differences in the timing of the three categories as a function of cognitive-complexity. For the two timing measures on which analyses were conducted, no predictors were significantly related to active-cognitive coping and only gender and locus of control were significantly and marginally related to active-behavioral coping respectively. Being female and more internal in locus of control orientation were associated with quicker use of active-behavioral strategies.

Finally, cognitive-complexity was not a significant predictor of any of the attribution dimensions. More global attributions were associated with being male and higher levels of stress reactivity; more positive expectancies for future success were associated with being female and with greater dispositional optimism.

The hypotheses set forth in the study reported here received little support from the data and as such the results did not serve to elucidate the mechanisms by which cognitive-complexity produces its stress-buffering effects. Cognitive-complexity failed to show divergent relationships with active versus avoidance coping. In addition, no effects of cognitive-complexity were found on any of the attribution dependent measures.

The results from the study showed that greater cognitive-complexity is significantly and positively related to active-cognitive coping as expected; however, results across the other two coping categories were not as strong and, in the case of avoidance coping, were contrary to predictions. With respect to active-behavioral coping, cognitive-complexity did not emerge as a significant predictor, although it did demonstrate a weak positive correlation with the coping category nearly equal to that exhibited with active-cognitive coping. In the case of avoidance coping, cognitive-complexity again demonstrated a positive although nonsignificant relationship. Rather

than greater cognitive-complexity being associated with more attempts at active coping and less reliance on avoidance strategies, greater cognitive-complexity in this sample was associated with increased coping efforts of all kinds. Some of the personality variables included in the study did demonstrate correlations with the coping and attribution measures that are consistent with their stress moderating effects for health. As was true in the case of cognitive-complexity though, personality variables failed to show a reliable pattern across DVs; those personality variables that did emerge as significant predictors did so on just one or two of the seven DVs for which multiple R was different from zero. Dispositional optimism was a significant predictor of active-cognitive coping with a correlation of .18; in addition, greater optimism was associated with more positive expectations for future success. The other personality variable found to be a significant predictor of one coping DV and one of the attribution dimensions was stress reactivity. Greater stress reactivity was associated with more avoidance coping ($r = .46$) and with more global attributions for negative outcomes ($r = .31$). Finally, global self-esteem and locus of control did not significantly contribute to the prediction of any of the coping or attribution DVs, although each emerged as a marginally significant predictor in one regression.

In addition to personality IVs, gender also emerged as a significant predictor in a number of cases. Being female was associated with waiting a shorter period before implementing active-behavioral coping strategies, making less global attributions for negative events, and finally with higher expectations for future success.

A number of explanations may account for the dearth of cognitive-complexity effects across this study. As noted previously, the range of scores on this variable was

restricted compared to the range found by Linville (1985, 1987) and that difference may have reduced the likelihood of detecting cognitive-complexity effects. For the current study, cognitive-complexity ranged from 1.49 to 3.86 compared to Linville's 1985 study in which scores ranged from 1.42 to 4.92 and her 1987 study in which the range was from 0. to 4.80. One reason the scores may have been truncated at the upper end of the distribution in the current research is that participants were given a sheet of paper with eleven columns to record the results of the trait sorting task. Using a separate column for each set of cards grouped together limited the maximum possible groups to eleven. Since the computation of cognitive-complexity takes into account both the number of categories created as well as the degree to which they share common elements, the limit on the number of groups may be responsible for the problem of restriction of range. Instead of providing participants with a single recording sheet it would be preferable to give them access to as many as they might need so that their traits sorts would not be limited by the recording procedure.

An additional issue related to the assessment of cognitive-complexity surrounds the selection of trait terms used in the sorting task. In the procedures designated by Linville and utilized in the studies reported here, a standard set of 33 traits were provided to all participants with which to describe themselves rather than having participants generate their own descriptors for sorting purposes. The use of a standard set of traits may often result in providing participants with terms that are not personally relevant to them and as such may serve to artificially lower their cognitive-complexity scores. For one thing, having fewer self-descriptive traits available to sort may limit both the number of groups formed as well as the extent to which trait terms are

dispersed across group combinations. In addition to having a reduced number of terms with which to work, the provision of nondescriptive terms lowers cognitive-complexity scores in another way. This happens because the formula for calculating the H-score requires that all traits that were not sorted into piles by a subject be pooled into a single group combination; the more traits that appear in any single group combination, the more H is lowered. For these reasons it may be more advantageous to have participants provide relevant terms for sorting so that the results of the trait sort more faithfully represent the extent of conceptual complexity characterizing the self-concept by eliminating error due to the assessment procedure.

Aside from the specific problems encountered in the study reported here, the results raise questions about the particular measure developed by Linville to assess cognitive-complexity. While the H-statistic has been used previously in measures of cognitive complexity, correlational evidence calls into question its utility in measuring complexity of the self-system. As reported earlier, correlations between H-scores for cognitive-complexity and other measures of cognitive complexity pertaining to the construct system for describing others were very low in magnitude, ranging from .02 to .28. While it can be argued that complexity in one conceptual domain may be distinct and unrelated to complexity in another domain, there is little in the way of convergent validity for the present assessment of cognitive-complexity. In addition to the fact that it does not correlate with other complexity measures, cognitive-complexity H-scores in the study demonstrated a weak correlation with the four item complexity scale developed for this study. Finally, cognitive-complexity has not shown strong associations with other constructs presumably related to it such as private self-consciousness.

In light of these concerns regarding the measure of cognitive-complexity and the lack of significant findings in the present study, additional work is needed to examine the validity of the cognitive-complexity measure before further extensions of Linville's research are undertaken. A study involving groups with known or suspected differences on constructs such as cognitive-complexity would be one way of obtaining validity data. For instance, groups of doctors such as psychoanalysts and cardiologists could be administered the cognitive-complexity measure along with other measures conceptually related to it such as introspection and private self-consciousness. Evidence for the validity of Linville's cognitive-complexity measure would be obtained if the psychoanalysts, whose specialty involves self-examination and understanding, attained higher H-scores than the comparison group of doctors that would be roughly equivalent on other characteristics such as education, intelligence, socio-economic status, etc. Convergent evidence would also emerge if cognitive-complexity scores were related in a logically consistent way to similar constructs; specifically, cognitive-complexity should be positively correlated with measures of introspection and self-awareness. In addition to questions pertaining to the validity of the cognitive-complexity assessment, another issue is cognitive-complexity's utility in predicting the cognitive and affective impact of events relative to other measures such as self-esteem. Linville's argument regarding the benefits of greater multiplicity and differentiation of the self-concept is based on the notion that self-aspects unassociated with the impinging event serve as buffers against the emotional impact of the event. For those individuals characterized by high cognitive-complexity, any one particular self-aspect is a smaller proportion of one's sense of self and thus has less overall impact on feelings of general worthiness and

satisfaction. It is unclear how this approach is really different from stating that the more sources from which one derives his/her sense of self-esteem and the less self-esteem is associated with any particular source, the less will be the impact of any event in a specific domain. An individual whose self-esteem was fairly evenly invested across eight domains would be expected to be influenced less by any one particular event (due to the moderating impact of self-esteem in the other seven domains) than an individual for whom self-esteem was based on his or her competence in just one or two domains. Profiles of self-esteem investment across separate content areas (activities, roles, relationships, etc.) could be developed using a measure such as Messer's and Harter's 1986 scales for assessing self-esteem in a variety of domains.

In order to test the relative efficacy of cognitive-complexity H-scores versus self-esteem profiles to predict individuals' reactions to events, both of these measures should be included in an attempt to replicate Linville's 1985 study in which participants' self-appraisals and affective reactions following positive or negative feedback were assessed. In addition, a domain specific cognitive-complexity measure, in this case exploring the complexity of the conceptual system regarding intellectual capability (the domain on which feedback would be provided) should also be included. Such a study would provide the opportunity to refine complexity measures or replace them with a measure of self-esteem so that the most easily administered and most valid concept be used in future research on individual differences in responses to stress.

Appendix A: Cognitive Complexity Card Sorting Directions

In this study we are interested in how you describe yourself. In front of you are 33 cards and one recording sheet. Each card contains the name of a trait or characteristic. Your task is to form groups of traits that go together, where each group of traits describes an aspect of you or your life. You may sort the traits into groups on any meaningful basis—but remember to think about yourself while doing this. Each group of traits might represent a different aspect of yourself. Form as many or as few groups as you desire. Continue forming groups until you feel that you have formed the important ones. I realize that this task could be endless, but I want only what you feel is meaningful to you. When you feel that you are straining to form more groups, it is probably a good time to stop.

Each group may contain as few or as many traits as you wish. You do **not** have to use every trait, only those that you feel are descriptive of you. Also, each trait may be used in more than one group; so you may keep **reusing** traits as many times as you like. For example, you may find out you want to use the trait "relaxed" in several groups. If you wish to use a trait in more than one group, you may use one of the blank cards in your packet. Simply write the trait and its number on a blank card and then proceed to use it as you would the other cards.

The sheet with the columns is your recording sheet. Use the recording sheet to indicate which traits you have put together. Each column will correspond to one of your groups. Notice the number in the corner of each card. Write only the trait's number in the column, not the name of the trait. In each column, place the number of the traits that form a group. A natural way to perform this task is to form one or several groups and record them, then mix up the cards and see if there are other groups that you wish to and then record them. Repeat this procedure until you feel that you have formed the groups that are important to you. Remember to use the blank cards if you wish to use the same trait in more than one group. If you need more recording space, turn the recording sheet over and use the back side. The order in which you record the groups is not important, not is the order of traits within a group. I am only interested in which traits you put together. After recording a trait group, place a label or descriptor to designate what aspect of you or your life the trait group represents, such as "student" or "athlete," above the column of that group. Do not put your name on the recording sheet. Your responses are strictly anonymous and confidential. So be as honest as you can.

As you are doing this task, I'd like you to keep a few things in mind. Remember that you are describing yourself in this task, not people in general. You do **not** have to use all of the traits, and you may **reuse** a trait in several groups. Take as much time as you like on the task. Please ask me if you need any clarification of the meaning of any trait or the task in general.

Appendix B: Self-Complexity Adjectives

Affectionate
Assertive
Conformist
Humorous
Imaginative
Individualist
Insecure
Lazy
Outgoing
Playful
Rebellious
Relaxed
Rude
Soft-Hearted
Studious
Unfriendly
Unorganized
Anxious
Competitive
Emotional
Hesitant
Impulsive
Industrious
Irresponsible
mature
Not Studious
Quiet
Reckless
Reserved
Shallow
Sophisticated
Tense
Unconventional

Appendix C: Global Self-Esteem Measure

Directions:

Carefully read each statement below. Decide how you feel about the statement. Do you strongly agree (SA) with it? Do you agree (A) with it? Do you disagree (D) with it? Or do you strongly disagree (SD) with the statement? Circle only one answer for each statement that best describes how you feel about the statement.

1)	On the whole I am satisfied with myself.	SA	A	D	SD
2)	At times I think I am no good at all.	SA	A	D	SD
3)	I feel that I have a number of good qualities.	SA	A	D	SD
4)	I am able to do things as well as most other people.	SA	A	D	SD
5)	I feel that I do not have much to be proud of.	SA	A	D	SD
6)	I certainly feel useless at times.	SA	A	D	SD
7)	I feel that I'm a person of worth, at least on an equal plan with others.	SA	A	D	SD
8)	I wish I could have more respect for myself.	SA	A	D	SD
9)	All in all, I am inclined to feel that I am a failure.	SA	A	D	SD
10)	I take a positive attitude toward myself.	SA	A	D	SD

Appendix D: I-E Scale

Instructions

This is a questionnaire to find out the way in which certain important events in our society affect different people. Each item consists of a pair of alternative statements lettered a or b. Please select the one statement of each pair (and ONLY one) which you more strongly believe to be the case as far as you are concerned. Be sure to select the one you actually believe to be more true rather than the one you think you should choose or the one you would like to be true. This is a measure of personal belief: obviously there are no right or wrong answers.

When you have selected your answer, circle the letter (a or b) of the statement. Please answer these items carefully but do not spent? too much time on any one item. Be sure to find an answer for every choice.

In some instances you may discover that you believe both statements or neither one. In such cases, be sure to select the one you more strongly believe to be the case. Also try to respond to each item independently when making your choice; do not be influenced by your previous choices.

1. a. Children get into trouble because their parents punish them too much.
   b. The trouble with most children nowadays is that their parents are too easy with them.

2. a. Many of the unhappy things in people's lives are partly due to bad luck.
   b. People's misfortunes result from the mistakes they make.

3. a. One of the major reasons why we have wars is because people don't take enough interest in politics.
   b. There will always be wars, no matter how hard people try to prevent them.

4. a. In the long run people get the respect they deserve in this world.
   b. Unfortunately, an individual's worth often passes unrecognized no matter how hard he tries.

5. a. The idea that teachers are unfair to students is nonsense.
   b. 1-tost students don't realize tae extent to which their grades are influenced by accidental happenings.

6. a. Without the right breaks one cannot be an effective leader.
   b. People who fail to become leaders have not taken advantage of their opportunities.

7. a. No matter now hard you try some people just don't like you.
   b. People who can't get others to like them don't understand how to get along with others.

8. a. Heredity plays the major role in determining one's personality.
   b. It is one's experiences in life which determine what they're like.

9. a. I have found that what is going to happen will happen.
   b. Trusting to fate has never turned out as well for me as making a decision to take a definite course of action.

10.a. In the case of the well prepared student there is rarely if ever such a thing as an unfair test.
   b. Many times exam questions tend to be so unrelated to course work that studying is really useless.

11.a. Becoming a success is a matter of hard work, luck has little or nothing to do with it.
   b. Getting a good job depends mainly on being in the right place at the right time.

12.a. The average citizen can have an influence in government decisions.
   b. This world is run by the few people in power, and there is not much the little guy can do about it.

13.a. When I make plans, I am almost certain that I can make them work.
   b. It is not always wise to plan too far ahead because many things turn out to be a matter of good or bad fortune anyhow.

14.a. There are certain people who are just no good.
   b. There is some good in everybody.

15.a. In my case getting what I want has little or nothing to do with luck.
   b. Many times we might just as well decide what to do by flipping a coin.

16.a. Who gets to be the boss often depends on who was lucky enough to be in the right place first.
   b. Getting people to do the right thing depends upon ability, luck has little or nothing to do with it.

17.a. As far as world affairs are concerned, most of us are the victims of forces we can neither understand, nor control.
b. By taking an active part in political and social affairs the people can control world events.

18.a. Most people don't realize the extent to which their lives are controlled by accidental happenings.
b. There really is no such thing as "luck."

19.a. One should always be willing to admit mistakes.
b. It is usually best to cover up one's mistakes.

20. a. It is hard to know whether or not a person really likes you.
b. How many friends you have depends upon how nice a person you are.

21. a. In the long run the bad things that happen to us are balanced by the good ones.
b. Most misfortunes are the result of lack of ability, ignorance, laziness, or all three.

22.a. With enough effort we can wine out political corruption.
b. It is difficult for people to have much control over the things politicians do in office.

23.a. Sometimes I can't understand how teachers arrive at the grades they give.
b. There is a direct connection between how hard I study and the grades I get.

24. a. A good leader expects people to decide for themselves what they should do.
b. A good leader makes it clear to everybody what their jobs are.

25. a. Many times I feel that I have little influence over the things that happen to me.
b. It is impossible for me to believe that chance or luck plays an important role in my life.

26. a. People are lonely because they don't try to be friendly.
b. There's not much use in trying too hard to please people, if they like you, they like you.

27.a. There is too much emphasis on athletics in thigh school.
b. Team sports are an excellent way to build character.

28.a. What happens to me is my own doing.
b. Sometimes I feel that I don't have enough control over the direction my life is taking.

29.a. Most of the time I can't understand why politicians behave the way they do.

b. In the long run the people are responsible for bad government on a national as well as on a local level

Appendix E: The Life Orientation Test

Please indicate the extent to which you agree with each of the below items, using the following response format:

4 = strongly agree 3 = agree 2 = neutral 1 = disagree 0 = strongly disagree

Please answer each question as accurately and honestly as you can, there are no correct or incorrect answers. Also, do not let your response for one item influence your answer for another question, please answer each question individually.

1. In uncertain times, I usually expect the best.	4	3	2	1	0
2. It's easy for me to relax.	4	3	2	1	0
3. If something can go wrong for me, it will.	4	3	2	1	0
4. I always look on the bright side of things.	4	3	2	1	0
5. I'm always optimistic about my future.	4	3	2	1	0
6. I enjoy my friends a lot.	4	3	2	1	0
7. It's important for me to keep busy.	4	3	2	1	0
8. I hardly ever expect things to go my way.	4	3	2	1	0
9. Things never work out the way I want them to.	4	3	2	1	0
10. I don't get upset to easily.	4	3	2	1	0
11. I'm a believer in the idea that "every cloud has a silver lining".	4	3	2	1	0
12. I rarely count on good things happening to me.	4	3	2	1	0

Appendix F: Attributional Style Questionnaire

DIRECTIONS:

Please try to vividly imagine yourself in the following situations. If such a situation happened to you, what would you feel would have caused it? While events may have many causes, we want you to specify only one – the cause of the event that happened to you. Please write this cause in the blank provided after each event.

Next we want to ask you some questions about the cause of the event. To summarize we want you to:

1. Read each situation and vividly imagine it happening to you.
2. Decide what you believe would be the one major cause of the situation if it happened to you.
3. Write this answer in the blank provided.
4. Answer three questions about the cause by circling one number per question. Do not circle the words.
5. Go on to the next situation.

SITUATIONS:

YOU MEET A FRIEND WHO COMPLIMENTS YOU ON YOUR APPEARANCE

1. Write down the one major cause:

_____

_____

2. Is the cause of your friend's compliment due to something about you or something about other people or circumstances?

Totally due to other people or circumstances.	**1**	**2**	**3**	**4**	**5**	**6**	**7** Totally due to me.

3. In the future when you are with your friend, will this cause again be present?

Will never be present.	**1**	**2**	**3**	**4**	**5**	**6**	**7** Will always be present.

4. Is this cause something that just affects interacting with friends, or does it also influence other areas of your life?

Influences just this particular situation.	**1**	**2**	**3**	**4**	**5**	**6**	**7**Influences all situations in my life.

YOU HAVE BEEN LOOKING FOR A JOB UNSUCCESSFULLY FOR SOME TIME.

5. Write down the one major cause:

_____

_____

6. Is the cause of your unsuccessful job search due to something about you or something about other people or circumstances?

Totally due to other people or circumstances.	**1**	**2**	**3**	**4**	**5**	**6**	**7** Totally due to me.

7. In the future when you look for a job, will this cause again be present?

Will never be present.	**1**	**2**	**3**	**4**	**5**	**6**	**7** Will always be present.

8. Is this cause something that just influences looking for a job, or does it also influence other areas of your life?

Influences just this particular situation.	**1**	**2**	**3**	**4**	**5**	**6**	**7**Influences all situations in my life.

YOU BECOME VERY RICH.

9. Write down the one major cause:

_____

_____

10 . Is the cause of your becoming rich due to something about you or something about other people or circumstances?

Totally due to other people or circumstances.	**1**	**2**	**3**	**4**	**5**	**6**	**7** Totally due to me.

11. In the financial future, will this cause again be present?

Will never be present.	**1**	**2**	**3**	**4**	**5**	**6**	**7** Will always be present.

12. Is this cause something that just affects obtaining money, or does it also influence other areas of your life?

Influences just this particular situation.	**1**	**2**	**3**	**4**	**5**	**6**	**7**Influences all situations in my life.

A FRIEND COMES TO YOU WITH A PROBLEM AND YOU DON'T TRY TO HELP HIM/HER.

13. Write down the one major cause:

_____

_____

14 . Is the cause of your not helping your friend due to something about you or something about other people or circumstances?

Totally due to other people or circumstances.	**1**	**2**	**3**	**4**	**5**	**6**	**7** Totally due to me.

15. In the future when a friend comes to you with a problem, will this cause again be present?

Will never be present.	1	2	3	4	5	6	7 Will always be present.

16. Is this cause something that just affects what happens when a friend comes to you with a problem, or does it also influence other areas of your life?

Influences just this particular situation.	1	2	3	4	5	6	7Influences all situations in my life.

YOU GIVE AN IMPORTANT TALK IN FRONT OF A GROUP AND THE AUDIENCE REACTS NEGATIVELY.

17. Write down the one major cause:

---

18 . Is the cause of your becoming rich due to something about you or something about other people or circumstances?

Totally due to other people or circumstances.	1	2	3	4	5	6	7 Totally due to me.

19. In the future when you give talks, will this cause again be present?

Will never be present.	1	2	3	4	5	6	7 Will always be present.

20. Is this cause something that just influences giving talks, or does it also influence other areas of your life?

Influences just this particular situation.	1	2	3	4	5	6	7Influences all situations in my life.

YOU DO A PROJECT WHICH IS HIGHLY PRAISED.

21. Write down the one major cause:

_____

_____

22 . Is the cause of your being praised due to something about you or something about other people or circumstances?

Totally due to other people or circumstances.	1	2	3	4	5	6	7 Totally due to me.

23. In the future when you do a project, will this cause again be present?

Will never be present.	1	2	3	4	5	6	7 Will always be present.

24. Is this cause something that just affects doing projects, or does it also influence other areas of your life?

Influences just this particular situation.	1	2	3	4	5	6	7Influences all situations in my life.

YOU MEET A FRIEND WHO ACTS HOSTILELY TOWARDS YOU.

25. Write down the one major cause:

_____

_____

26 . Is the cause of your friend acting hostile due to something about you or something about other people or circumstances?

Totally due to other people or circumstances.	1	2	3	4	5	6	7 Totally due to me.

27. In the future when interacting with friends, will this cause again be present?

Will never be present.	1	2	3	4	5	6	7 Will always be present.

28. Is this cause something that just influences interacting with friends, or does it also influence other areas of your life?

Influences just this particular situation.	**1**	**2**	**3**	**4**	**5**	**6**	7Influences all situations in my life.

YOU CANT GET ALL THE WORK DONE THAT OTHERS EXPECT OF YOU.

29. Write down the one major cause:

---

30 . Is the cause of your not getting the work done due to something about you or something about other people or circumstances?

Totally due to other people or circumstances.	**1**	**2**	**3**	**4**	**5**	**6**	**7** Totally due to me.

31. In the future when doing work that others expect, will this cause again be present?

Will never be present.	**1**	**2**	**3**	**4**	**5**	**6**	**7** Will always be present.

32. Is this cause something that just affects doing work that others expect of you, or does it also influence other areas of your life?

Influences just this particular situation.	**1**	**2**	**3**	**4**	**5**	**6**	7Influences all situations in my life.

YOUR SPOUSE (BOYFRIEND/GIRLFRIEND) HAS BEEN TREATING YOU MORE LOVINGLY.

33. Write down the one major cause:

---

34 . Is the cause of your spouse (boyfriend/girlfriend) treating you more lovingly due to something about you or something about other people or circumstances?

Totally due to other people or circumstances.	**1**	**2**	**3**	**4**	**5**	**6**	**7** Totally due to me.

35. In future interactions with your spouse (boyfriend/ girlfriend), will this cause again be present?

Will never be present.	**1**	**2**	**3**	**4**	**5**	**6**	**7** Will always be present.

36. Is this cause something that just affects how your spouse (boyfriend/girlfriend) treats you, or does it also influence other areas of your life?

Influences just this particular situation.	**1**	**2**	**3**	**4**	**5**	**6**	**7**Influences all situations in my life.

YOU APPLY FOR A POSITION THAT YOU WANT VERY BADLY (e.g., IMPORTANT JOB, GRADUATE SCHOOL ADMISSION, ETC.) AND YOU GET IT.

37. Write down the one major cause:

_____

_____

38 . Is the cause of your getting the position due to something about you or something about other people or circumstances?

Totally due to other people or circumstances.	**1**	**2**	**3**	**4**	**5**	**6**	**7** Totally due to me.

39. In the future when you apply for a position, will this cause again be present?

Will never be present.	**1**	**2**	**3**	**4**	**5**	**6**	**7** Will always be present.

40. Is this cause something that just influences applying for a position, or does it also influence other areas of your life?

Influences just this particular situation.	**1**	**2**	**3**	**4**	**5**	**6**	**7**Influences all situations in my life.

YOU GO OUT ON A DATE AND IT GOES BADLY.

41. Write down the one major cause:

_____

_____

42 . Is the cause of the date going badly due to something about you or something about other people or circumstances?

Totally due to other people or circumstances.	**1**	**2**	**3**	**4**	**5**	**6**	**7** Totally due to me.

43. In the future when you are dating, will this cause again be present?

Will never be present.	**1**	**2**	**3**	**4**	**5**	**6**	**7** Will always be present.

44. Is this cause something that just influences dating, or does it also influence other areas of your life?

Influences just this particular situation.	**1**	**2**	**3**	**4**	**5**	**6**	**7**Influences all situations in my life.

YOU GET A RAISE.

45. Write down the one major cause:

_____

_____

46 . Is the cause of your getting a raise due to something about you or something about other people or circumstances?

Totally due to other people or circumstances.	**1**	**2**	**3**	**4**	**5**	**6**	**7** Totally due to me.

47. In the future on your job, will this cause again be present?

Will never be present.	**1**	**2**	**3**	**4**	**5**	**6**	**7** Will always be present.

48. Is this cause something that just affects getting a raise, or does it also influence other areas of your life?

Influences just this particular situation.	**1**	**2**	**3**	**4**	**5**	**6**	**7**Influences all situations in my life.

Appendix G: Coping Style Questionnaire

The purpose of this questionnaire is to examine the ways in which college students handle various situations that can commonly come up in their life experiences. Please read each of the four events and think about the ways in which you would handle them if the events happened to you. Use what you know about yourself and any information you have about how you dealt with the same or similar event in the past to answer the items. After considering how you would handle the event, read the 32 items that follow each event and indicate which of them you would employ in that situation by placing an 'X' in the blanks before those items. For each item checked off, rate how long you would wait before implementing that strategy by circling one of the numbers to the right (1 to 5): 1 = (immediately after the event) to 5 = (a long time after the event).

1. You have been looking for a job unsuccessfully for some time.

		Immediately after the event				A long time event
___	Prayed for guidance and/or strength	1	2	3	4	5
___	Prepared for the worst	1	2	3	4	5
___	Tried to find out more about the situation	1	2	3	4	5
___	Talked with spouse or other relative about the problem	1	2	3	4	5
___	Took it out on other people when I felt angry or depressed	1	2	3	4	5
___	Tried to see the positive side of the situation	1	2	3	4	5
___	Talked with a friend about the problem	1	2	3	4	5
___	Tried to reduce tension by taking drugs	1	2	3	4	5
___	Tried to reduce tension by exercising more	1	2	3	4	5
___	Let my feelings out somehow	1	2	3	4	5
___	Accepted it; nothing could be done	1	2	3	4	5
___	Refused to believe it happened	1	2	3	4	5
___	Sought help from persons or groups with similar experiences	1	2	3	4	5

		Immediately after the event				A long time event
___	Took things a day at a time	1	2	3	4	5
___	Got busy with other things to keep my mind off the problem	1	2	3	4	5
___	Made a promise to myself that things would be different next time	1	2	3	4	5
___	Tried to reduce tension by smoking more	1	2	3	4	5
___	Tried not to act too hastily or follow my first hunch	1	2	3	4	5
___	Went over the situation in my mind to try to understand it	1	2	3	4	5
___	Bargained or compromised to get something positive from the situation	1	2	3	4	5
___	Tried to reduce tension by eating more	1	2	3	4	5
___	Told myself things that helped me feel better	1	2	3	4	5
___	Made a plan of action and followed it	1	2	3	4	5
___	Avoided being with people in general	1	2	3	4	5
___	Tried to step back from the situation and be more objective	1	2	3	4	5
___	Got away from things for awhile	1	2	3	4	5
___	Kept my feelings to myself	1	2	3	4	5
___	I knew what had to be done and tried harder to make things work	1	2	3	4	5
___	Drew on my past experiences	1	2	3	4	5
___	Considered several alternatives for handling the problem	1	2	3	4	5
___	Tried to reduce stress by drinking more	1	2	3	4	5
___	Talked with professional person (e.g., counselor, doctor, clergy)	1	2	3	4	5

2. You give an important talk in front of a group and the audience reacts negatively.

		Immediately after the event				A long time event
___	Prayed for guidance and/or strength	1	2	3	4	5
___	Prepared for the worst	1	2	3	4	5
___	Tried to find out more about the situation	1	2	3	4	5
___	Talked with spouse or other relative about the problem	1	2	3	4	5

		Immediately after the event				A long time event
___	Took it out on other people when I felt angry or depressed	1	2	3	4	5
___	Tried to see the positive side of the situation	1	2	3	4	5
___	Talked with a friend about the problem	1	2	3	4	5
___	Tried to reduce tension by taking drugs	1	2	3	4	5
___	Tried to reduce tension by exercising more	1	2	3	4	5
___	Let my feelings out somehow	1	2	3	4	5
___	Accepted it; nothing could be done	1	2	3	4	5
___	Refused to believe it happened	1	2	3	4	5
___	Sought help from persons or groups with similar experiences	1	2	3	4	5
___	Took things a day at a time	1	2	3	4	5
___	Got busy with other things to keep my mind off the problem	1	2	3	4	5
___	Made a promise to myself that things would be different next time	1	2	3	4	5
___	Tried to reduce tension by smoking more	1	2	3	4	5
___	Tried not to act too hastily or follow my first hunch	1	2	3	4	5
___	Went over the situation in my mind to try to understand it	1	2	3	4	5
___	Bargained or compromised to get something positive from the situation	1	2	3	4	5
___	Tried to reduce tension by eating more	1	2	3	4	5
___	Told myself things that helped me feel better	1	2	3	4	5
___	Made a plan of action and followed it	1	2	3	4	5
___	Avoided being with people in general	1	2	3	4	5
___	Tried to step back from the situation and be more objective	1	2	3	4	5
___	Got away from things for awhile	1	2	3	4	5
___	Kept my feelings to myself	1	2	3	4	5
___	I knew what had to be done and tried harder to make things work	1	2	3	4	5
___	Drew on my past experiences	1	2	3	4	5
___	Considered several alternatives for handling the problem	1	2	3	4	5

		Immediately after the event				A long time event
___	Tried to reduce stress by drinking more	1	2	3	4	5
___	Talked with professional person (e.g., counselor, doctor, clergy)	1	2	3	4	5

3. Your G.P.A. for the semester is low.

___	Prayed for guidance and/or strength	1	2	3	4	5
___	Prepared for the worst	1	2	3	4	5
___	Tried to find out more about the situation	1	2	3	4	5
___	Talked with spouse or other relative about the problem	1	2	3	4	5
___	Took it out on other people when I felt angry or depressed	1	2	3	4	5
___	Tried to see the positive side of the situation	1	2	3	4	5
___	Talked with a friend about the problem	1	2	3	4	5
___	Tried to reduce tension by taking drugs	1	2	3	4	5
___	Tried to reduce tension by exercising more	1	2	3	4	5
___	Let my feelings out somehow	1	2	3	4	5
___	Accepted it; nothing could be done	1	2	3	4	5
___	Refused to believe it happened	1	2	3	4	5
___	Sought help from persons or groups with similar experiences	1	2	3	4	5
___	Took things a day at a time	1	2	3	4	5
___	Got busy with other things to keep my mind off the problem	1	2	3	4	5
___	Made a promise to myself that things would be different next time	1	2	3	4	5
___	Tried to reduce tension by smoking more	1	2	3	4	5
___	Tried not to act too hastily or follow my first hunch	1	2	3	4	5
___	Went over the situation in my mind to try to understand it	1	2	3	4	5
___	Bargained or compromised to get something positive from the situation	1	2	3	4	5
___	Tried to reduce tension by eating more	1	2	3	4	5
___	Told myself things that helped me feel better	1	2	3	4	5

		Immediately after the event				A long time event
___	Made a plan of action and followed it	1	2	3	4	5
___	Avoided being with people in general	1	2	3	4	5
___	Tried to step back from the situation and be more objective	1	2	3	4	5
___	Got away from things for awhile	1	2	3	4	5
___	Kept my feelings to myself	1	2	3	4	5
___	I knew what had to be done and tried harder to make things work	1	2	3	4	5
___	Drew on my past experiences	1	2	3	4	5
___	Considered several alternatives for handling the problem	1	2	3	4	5
___	Tried to reduce stress by drinking more	1	2	3	4	5
___	Talked with professional person (e.g., counselor, doctor, clergy)	1	2	3	4	5

4. You meet a friend who acts hostilely towards you.

___	Prayed for guidance and/or strength	1	2	3	4	5
___	Prepared for the worst	1	2	3	4	5
___	Tried to find out more about the situation	1	2	3	4	5
___	Talked with spouse or other relative about the problem	1	2	3	4	5
___	Took it out on other people when I felt angry or depressed	1	2	3	4	5
___	Tried to see the positive side of the situation	1	2	3	4	5
___	Talked with a friend about the problem	1	2	3	4	5
___	Tried to reduce tension by taking drugs	1	2	3	4	5
___	Tried to reduce tension by exercising more	1	2	3	4	5
___	Let my feelings out somehow	1	2	3	4	5
___	Accepted it; nothing could be done	1	2	3	4	5
___	Refused to believe it happened	1	2	3	4	5
___	Sought help from persons or groups with similar experiences	1	2	3	4	5
___	Took things a day at a time	1	2	3	4	5

		Immediately after the event				A long time event
___	Got busy with other things to keep my mind off the problem	1	2	3	4	5
___	Made a promise to myself that things would be different next time	1	2	3	4	5
___	Tried to reduce tension by smoking more	1	2	3	4	5
___	Tried not to act too hastily or follow my first hunch	1	2	3	4	5
___	Went over the situation in my mind to try to understand it	1	2	3	4	5
___	Bargained or compromised to get something positive from the situation	1	2	3	4	5
___	Tried to reduce tension by eating more	1	2	3	4	5
___	Told myself things that helped me feel better	1	2	3	4	5
___	Made a plan of action and followed it	1	2	3	4	5
___	Avoided being with people in general	1	2	3	4	5
___	Tried to step back from the situation and be more objective	1	2	3	4	5
___	Got away from things for awhile	1	2	3	4	5
___	Kept my feelings to myself	1	2	3	4	5
___	I knew what had to be done and tried harder to make things work	1	2	3	4	5
___	Drew on my past experiences	1	2	3	4	5
___	Considered several alternatives for handling the problem	1	2	3	4	5
___	Tried to reduce stress by drinking more	1	2	3	4	5
___	Talked with professional person (e.g., counselor, doctor, clergy)	1	2	3	4	5

Appendix H: The Perceived Stress Scale

The questions in this scale ask you about your feelings and thoughts during the last month. In each case, you will be asked to indicate how often you felt or thought a certain way. Although some of the questions are similar, there are differences between them and you should treat each one as a separate question. The best approach is to answer each question fairly quickly. That is, do not try to count up the number of times that you felt a particular way, but rather indicate the alternative that seems like a reasonable estimate.

For each question, choose from the following

4 = very often 3 = fairly often 2 = sometimes 1 = almost never 0 = never

Place the number of the response (4 to 0) that best fits your answer in the blank before the question.

1. ____ In the last month, how often have you been upset because of something that happened unexpectedly?
2. ____ In the last month, how often have you felt that you were unable to control the important things in your life?
3. ____ In the last month, how often have you felt nervous and "stressed?"
4. ____ In the last month, how often have you dealt successfully with irritating life hassles?
5. ____ In the last month, how often have you felt that you were effectively coping with important changes that were occurring in your life?
6. ____ In the last month, how often have you felt confident about your ability to handle personal problems?
7. ____ In the last month, how often have you felt that things were going your way?
8. ____ In the last month, how often have you found that you could not cope with all the things that you had to do?
9. ____ In the last month, how often have you been able to control irritations in your life?
10. ____ In the last month, how often have you felt that you were on top of things?
11. ____ In the last month, how often have you been angered because of things that happened outside of your control?
12. ____ In the last month, how often have you found yourself thinking about things that you had to accomplish?

13.____ In the last month, how often have you been able to control the way that you spend your time?

14.____ In the past month, how often have you felt difficulties were piling up so high that you could not overcome them?

References

Cohen, L. H., Pane, N., & Smith, H.S. (1997). Complexity of the interpersonal self and affective reactions to interpersonal stressors in life and in the laboratory. Cognitive Therapy and Research, 21, 387-407.

Coyne, J.C., Aldwin, C., & Lazarus, R.S. (1981). Depression and coping in stressful episodes. Journal of Abnormal Psycholo~v, 90, 439-447.

Ellis, A. (1979). Theoretical and empirical foundations of rational-emotive therapy. Monterey, CA: Brooks/Cole Pub. Co.

Ellis, A. (1985). Clinical applications of rational-emotive therapy. New York: Plenum Press.

Holahan, C.J. & Moos, R.H. (1985). Life stress and health: Personality, coping and family support in stress resistance. Journal of Personality and Social Psycholo49, 739-747.

Holroyd, K.A. & lazarus, R.S. (1982). Stress, coping, and somatic adaptation. In L. Goldberger and S. Breznitz (Eds.), Handbook of stress: Theoretical and clinical aspects (pp. 21-35). New York: The Free Press.

Johnson, J.H. & Sarason, I.G. (1978). Life stress, depression and anxiety: Internal-external control as a moderator variable. Journal of Psychosomatic Research, 22, 205-208.

Kalthoff, R.A. & Neimeyer, R.A. (1993). Self-complexity and psychological distress: A test of the buffer model. International Journal of Personal Construct Psycholo6, 327-349.

Kobasa, S.C. (1979). Stressful life events, personality, and health: An inquiry into hardiness. Journal of Personality and Social Psychology, 37, 1-11.

Lazarus, R.S. (1966). Psychological stress and the coping process. New York: McGraw

Lazarus, R.S. & Folkman, S. (1984). Stress, appraisal, and coping. New York: Springer.

Linville, P.W. (1985). Self-complexity and affective extremity: Don't put all of your eggs in one cognitive basket. Social Cognition, 3, 94-120.

Linville, P.W. (1987). Self-complexity as a cognitive buffer against stress-related illness and depression. Journal of Personality and Social psychology, 52, 663-676.

Metalsky, G.I., Halberstadt, L.J., & Abramson, L.Y. (1987). Vulnerability to depressive mood reactions: Toward a more powerful test of the diathesis-stress and causal mediation components of the reformulated theory of depression. Journal of Personality and Social psychology, 52. 386-393.

Niedenthal, P.M., Setterlund, M.B., & Wherry, M.B. (1992). Possible self-complexity and affective reactions to goal relevant evaluation. Journal of Personality and Social Psychology, 63, 5-16.

Parkes, K.R. (1984). Locus of control, cognitive appraisal, and coping in stressful episodes. Journal of Personality and Social Psychology, 46, 655-668.

Pearlin, L. I., Lieberman, M. A., Menaghan, E. G., & Mullan, J. T. (1991). The stress process. Journal of Health and Social Behavior, 22, 337-356.

Pearlin, L.I. & Schooler, C. (1988). The structure of coping. Journal of Health and Social Behavior, 19, 2-21.

Rabkin, J.G. & Struening, E.L. (1976). Life events, stress, and illness. Science, 194, 1013-1020.

Rosenberg, M. (1965). Society and the adolescent self-image. Princeton: Princeton University Press.

Roskies, E. & Lazarus, R. S. (1980). Coping theory and the teaching of coping skills. In P. Davidson andd S. Davidson (Eds.), Behavioral medicine: Changing health lifestyles (pp. 38-69). New York: Brunner/Mazel.

Rotter, J.B. (1966). Generalized expectancies for internal versus external control of reinforcement. Psychological Monographs: General and Applied, 80, (1, Whole. 609).

Rowe, M.M. (1997). Hardiness, stress, temperament, coping, and burnout in health professionals. American Journal of Health Behavior, 21, 163-171.

Sandler, I.N. & Lakey, B. (1982). Locus of control as a stress moderator: The role of control perceptions and social support. American Journal of Community Psychology, 10,65-80.

Scheier, M.F. & Carver, C.S. (1985). Optimism, coping, and health: Assessment and implications of generalized outcome expectancies. Health Psychology, 4, 219-247.

Seligman, M.E.P., Abramson, L.Y., Semmel, A., & yon Baeyer, C. (1979). Depressive attributional style. Journal of Abnormal Psychology, 88, 242-247.

Sharpley, C.F, Dua, J.K., Reynolds, R., & Acosta, A. (1995). The direct and relative efficacy of cognitive hardiness, Type A behaviour pattern, coping behaviour and social support as predictors of stress and ill-health. Scandinavian Journal of Behaviour Therapy, 24, 15-29.

Smith, H.S. & Cohen, L.H. (1993). Self-complexity and reactions to a relationship breakup. Journal of Social and Clinical Psychology, 12, 367-384.

Solcova, I. & Tomanek, P. (1994). Daily stress coping strategies: An effect of hardiness. Studia Psychology, 36, 390-392.

Tanck, R.H. & Robbins, P.R. (1979). Assertiveness, locus of control and coping behaviors used to diminish tension. Journal of Personality Assessment, 43, 396-400.

Thoits, P.A. (1983). Multiple identities and psychological well-being: A reformulation and test of the social isolation hypothesis. American Sociological Review, 48, 174-187.

Thoits, P.A. (1986). Social support as coping assistance. Journal of Consulting and Clinical Psychology, 54, 416-423.

Wills, T.A. (1985). Supportive functions of interpersonal relationships. In S. Cohen and S.L Syme (Eds.), Social support and health (pp. 61-82). New York: Academic Press.

Woolfolk, R.L., Novalany, J., Gara, M.A., and Allen, L.A., (1995). Self-complexity, self-evaluation, and depression: An examination of form and content within the self-schema. Journal of Personality and Social Psychology, 68, 1108-1120.